

WHAT IS CLAIMED IS:

- 1 1. A method of measuring the strength of a received signal having a dynamic
2 range, said method comprising:
3 generating a plurality of DC offsets of increasing value and imposing each of
4 the offsets on a first polarity of the received signal;
5 determining when each of the offsets is overcome by the amplitude of the
6 received signal; and
7 indicating the strength of the received signal as the greatest of the plurality of
8 offsets overcome by the amplitude of the received signal.
- 9 2. The method of Claim 1 wherein said determining further comprises comparing
10 the first polarity of the received signal for each imposed offset with a second polarity
11 of the received signal to identify when the amplitude of the first polarity exceeds the
12 amplitude of the second polarity.
- 1 3. The method of Claim 2 wherein the plurality of DC offsets increase by a step
2 increment equal to the total dynamic range of the received signal in dB divided by the
3 number of the plurality of offsets.
- 1 4. The method of Claim 2 wherein the plurality of offsets is divided into two or
2 more portions, said method further comprising amplifying the received signal for at
3 least one of the portions.
- 1 5. The method of Claim 3 wherein the plurality of offsets is divided into a first
2 half of offsets starting with the offset of smallest magnitude and increasing by the step
3 increment and a second half of offsets ending with the offset of the greatest
4 magnitude, said method further comprising amplifying the received signal for the first
5 half of offsets.
- 1 6. The method of Claim 1 further comprising down-converting the received
2 signal from an RF to an IF signal before said imposing of the plurality of offsets.
- 1 7. The method of Claim 1 further comprising programmably amplifying the
2 received signal prior to imposing the plurality of offsets to adjust for variations in
3 gains of processing components.
- 1 8. The method of Claim 1 further comprising converting the indication of the
2 strength of the received signal from the greatest offset overcome by the amplitude of
3 the received signal to a binary-coded representation of the amplitude.

1 9. An apparatus for measuring the strength of a received signal having a dynamic
2 range, said apparatus comprising:

3 means for generating a plurality of DC offsets of increasing value and
4 imposing each of the offsets on a first polarity of the received signal;

5 means for determining when each of the offsets is overcome by the amplitude
6 of the received signal; and

7 means for indicating the strength of the received signal as the greatest of the
8 plurality of offsets overcome by the amplitude of the received signal.

9 10. The apparatus of Claim 9 wherein said means for determining further
10 comprises means for comparing the first polarity of the received signal for each
11 imposed offset with a second polarity of the received signal to identify when the
12 amplitude of the first polarity exceeds the amplitude of the second polarity.

1 11. The apparatus of Claim 10 wherein the plurality of DC offsets increase in
2 value by a step increment in dB equal to the total dynamic range of the received signal
3 in dB divided by the number of the plurality of offsets.

1 12. The apparatus of Claim 10 wherein the plurality of offsets is divided into two
2 or more portions, said apparatus further comprising means for amplifying the received
3 signal for at least one of the portions.

1 13. The apparatus of Claim 11 wherein the plurality of offsets is divided into a
2 first half of offsets starting with the offset of smallest magnitude and increasing by the
3 step increment and a second half of offsets ending with the offset of the greatest
4 magnitude, said apparatus further comprising means for amplifying the received
5 signal for the first half of offsets.

1 14. The apparatus of Claim 9 further comprising means for down-converting the
2 received signal from an RF to an IF signal before said imposing of the plurality of
3 offsets.

1 15. The apparatus of Claim 9 further comprising means for programmably
2 amplifying the received signal prior to imposing the plurality of offsets to adjust for
3 variations in gains of processing components.

1 16. The apparatus of Claim 9 further comprising means for converting the
2 indication of the strength of the received signal from the greatest offset overcome by
3 the amplitude of the received signal to a binary-coded representation of the amplitude.

1 17. An apparatus for measuring the strength of a received signal, said apparatus
2 comprising:

3 a rectifier circuit, said rectifier circuit further comprising:

4 an offset circuit having an input for receiving a first polarity of the
5 received signal and producing a plurality of outputs each comprising the one polarity
6 of the received signal added to one of a plurality of DC offsets of increasing value;
7 and

8 a plurality of comparator circuits each having a first input for receiving
9 one of the plurality of outputs of the offset circuit, a second input for receiving a
10 second polarity of the received signal, and an output that is inactive when the
11 amplitude of the signal on the second input is greater than the amplitude of the signal
12 on the first input and active when the amplitude of the signal on the first input is
13 greater than the amplitude of the signal on the second input; and

14 wherein the strength of the received signal is thereby indicated by the active
15 outputs of the comparators to be the greatest of the plurality of offsets overcome by
16 the amplitude of the received signal.

1 18. The apparatus of claim 17 wherein the plurality of DC offsets increase by a
2 step increment equal to the total dynamic range of the received signal in dB divided
3 by the number of the plurality of offsets.

1 19. The apparatus of claim 18 wherein the offset circuit is a resistor ladder
2 network.

1 20. The apparatus of Claim 18 wherein the rectifier circuit is divided into two or
2 more rectifier sub-circuits each having its own offset sub-circuit that generates a
3 portion of the plurality of offsets, and each rectifier circuit further having a portion of
4 the plurality of comparators; and wherein the first polarity of the received signal
5 coupled to the offset sub-circuit of at least one of the rectifier sub-circuits, and the
6 second polarity of the received signal coupled to the second input of the at least one
7 rectifier sub-circuit's portion of the comparators both being amplified by a
8 predetermined gain.

1 21. The apparatus of Claim 17 wherein the received signal is down-converted
2 from an RF signal to an IF signal before being received by the rectifier circuit.

1 22. The apparatus of Claim 17 wherein the outputs of the plurality of comparators
2 are coupled to a decoder circuit for converting the indication of received signal
3 strength from thermometer encoding to binary encoding.